Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

NORTHERN REGIONAL OFFICE
13901 Crown Court, Woodbridge, Virginia 22193
(703) 583-3800 FAX (804) 698-4178
www.deq.virginia.gov

Travis A. Voyles
Acting Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus
Director
(804) 698-4020

Thomas A. Faha
Regional Director

October 3, 2022

Mr. Chris Napier
Vice President of Operations
CyrusOne, LLC
2850 N Hardwood St., Suite 2200
Dallas, TX 75201

Location: Loudoun County
Registration No.: 74164

Dear Mr. Napier:

Attached is a permit to construct and operate emergency diesel engine generator sets (gen-sets) at CyrusOne Sterling VIII data center in accordance with the provisions of the Virginia State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution. This permit document supersedes your permit document dated February 21, 2020.

In the course of evaluating the application and arriving at a final decision to approve the project, the Department of Environmental Quality (DEQ) deemed the application complete on September 22, 2022.

This permit contains legally enforceable conditions. Failure to comply may result in a Notice of Violation and/or civil charges. Please read all permit conditions carefully.

This permit approval to construct and operate shall not relieve CyrusOne, LLC of the responsibility to comply with all other local, state, and federal permit regulations.

The proposed and the existing emergency diesel engine gen-sets may be subject to the requirements of 40 CFR Part 60, New Source Performance Standards (NSPS) Subpart IIII – *Standards of Performance for Stationary Compression Ignition Internal Combustion* Engines and 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants (MACT) Subpart ZZZZ – *National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.* In summary, the units may be required to comply

with certain federal emission standards and operating limitations. The Department of Environmental Quality (DEQ) advises you to review the referenced MACT and NSPS to ensure compliance with applicable emission and operational limitations. As the owner/operator you are also responsible for any monitoring, notification, reporting and recordkeeping requirements of the MACT and NSPS. Notifications shall only be sent to EPA, Region III.

To review any federal rules referenced in the above paragraph or in the attached permit, the US Government Publishing Office maintains the text of these rules at **www.ecfr.gov**, Title 40, Part 60 and 63.

The Board's Regulations as contained in Title 9 of the Virginia Administrative Code 5-170-200 provide that you may request a formal hearing from this case decision by filing a petition with the Board within 30 days after this case decision notice was mailed or delivered to you. Please consult the relevant regulations for additional requirements for such requests.

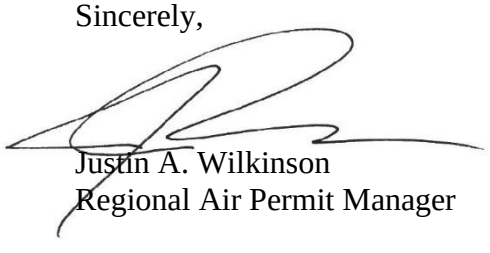
As provided by Rule 2A:2 of the Supreme Court of Virginia, you have 30 days from the date you actually received this permit or the date on which it was mailed to you, whichever occurred first, within which to initiate an appeal of this decision by filing a Notice of Appeal with:

Michael S. Rolband, Director
Department of Environmental Quality
P. O. Box 1105
Richmond, VA 23218

If this permit was delivered to you by mail, three days are added to the thirty-day period in which to file an appeal. Please refer to Part Two A of the Rules of the Supreme Court of Virginia for information on the required content of the Notice of Appeal and for additional requirements governing appeals from decisions of administrative agencies.

If you have any questions concerning this permit, please contact Ms. Katie DeVoss at (571) 866-6048 or katie.devoss@deq.virginia.gov.

Sincerely,



Justin A. Wilkinson
Regional Air Permit Manager

JAW/KD/74164 mNSR (2022-10-03)

Attachment: Permit

Commonwealth of Virginia

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Director
(804) 698-4020

Thomas A. Faha
Regional Director

STATIONARY SOURCE PERMIT TO CONSTRUCT AND OPERATE

This permit document supersedes your permit document dated February 21, 2020.

In compliance with the Federal Clean Air Act and the Commonwealth of Virginia Regulations for the Control and Abatement of Air Pollution,

CyrusOne, LLC
45905 Maries Road
Sterling, Virginia 20166
Registration No.: 74164

is authorized to construct and operate

emergency diesel engine generator sets (gen-sets)

located at

CyrusOne Sterling VIII Facility
45905 Maries Road
Sterling, Virginia 20166
(Loudoun County)

in accordance with the Conditions of this permit.

Approved on: October 3, 2022.

Justin A. Wilkinson
Regional Air Permit Manager

Permit consists of 19 pages.
Permit Conditions 1 to 32.

INTRODUCTION

This permit approval is based on and combines permit terms and conditions in accordance with 9VAC5-80-1255 from the following permit approvals and the respective permit applications:

Permit Program: Approval/Amendment	Application/Letter Signature Date	Application Amendment Date	Application Supplemental Information Date
Minor NSR: February 21, 2020	April 12, 2019		April 23, 2019 October 7, 2019
Minor NSR: March 21, 2019	August 30, 2018	January 28, 2019 February 13, 2019	October 30, 2018 December 20, 2018
Minor NSR: October 3, 2022	July 25, 2022		September 22, 2022

Any changes in the permit application specifications or any existing facilities, which alter the impact of the facility on air quality, may require a permit. Failure to obtain such a permit prior to construction may result in enforcement action. In addition, this facility may be subject to additional applicable requirements not listed in this permit.

Words or terms used in this permit shall have meanings as provided in 9VAC5-80-1110 and 9VAC5-10-10 of the Commonwealth of Virginia's State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution. The regulatory reference or authority for each condition is listed in parentheses () after each condition.

Annual requirements to fulfill legal obligations to maintain current stationary source emissions data will necessitate a prompt response by the permittee to requests by the Department of Environmental Quality (DEQ) or the Board for information to include, as appropriate: process and production data; changes in control equipment; and operating schedules. Such requests for information from the DEQ will either be in writing or by personal contact.

The availability of information submitted to the DEQ or the Board will be governed by applicable provisions of the Freedom of Information Act, §§ 2.2-3700 through 2.2-3714 of the Code of Virginia, § 10.1-1314 (addressing information provided to the Board) of the Code of Virginia, and 9VAC5-170-60 of the State Air Pollution Control Board's Regulations. Information provided to federal officials is subject to appropriate federal law and regulations governing confidentiality of such information.

Equipment List – Equipment at this facility consists of:

Equipment to be constructed:					
Engine Group	**Reference No.**	**Equipment Description**	**Standby Rated Capacity**	**Delegated Federal Requirements**	**Original Permit Date**
Group 2a	10-GEN-D1, 10-GEN-E1, 20-GEN-A1, 20-GEN-B1, 20-GEN-C1, 20-GEN-D1, 20-GEN-E1, 20-GEN-A2, 20-GEN-B2, 20-GEN-C2, 20-GEN-D2, & 20-GEN-E2	Twelve (12) CAT 3516C emergency diesel engine gen-sets	3,634 bhp 2,500 ekW (each unit)	None	October 3, 2022

Equipment permitted prior to the date of this permit:					
Engine Group	**Reference No.**	**Equipment Description**	**Standby Rated Capacity**	**Delegated Federal Requirements**	**Original Permit Date**
Group 2	10-GEN-A1, 10-GEN-B1, 10-GEN-C1, & 10-GEN-R1	Four (4) MTU 16V4000G84S emergency diesel engine gen-sets	3,353 bhp 2,250 ekW (each unit)	None	February 21, 2020
Group 1	10-GEN-A2, 10-GEN-B2, 10-GEN-C2 & 10-GEN-R2	Four (4) MTU 16V4000G84S emergency diesel engine gen-sets	3,353 bhp 2,250 ekW (each unit)	None	March 21, 2019
Group HGEN	HGEN-1	One (1) Cummins DQGAF emergency diesel engine gen-set	2,220 bhp 1,500 ekW (de-rated to 1,125 ekW)	None	March 21, 2019

Specifications included in the above tables are for informational purposes only and do not form enforceable terms or conditions of the permit.

PROCESS REQUIREMENTS

1. **Emission Controls** -

   a. Nitrogen oxides (NO_X) emissions from each emergency diesel engine gen-set (Engine Groups 1, 2, and HGEN) shall be controlled by electronic fuel injection, turbocharged engines, and charge air coolers. The permittee shall maintain documentation that demonstrates the control devices have been installed on each emergency diesel engine gen-set.

   b. Nitrogen oxides (NO_x) emissions from each emergency diesel engine gen-set (Engine Group 2a) shall be controlled by engine design.

   (9VAC5-80-1180 and 9VAC5-50-260)

2. **Emission Controls** - Visible emissions, particulate matter (PM_{10} and $PM_{2.5}$) emissions, carbon monoxide (CO) emissions, volatile organic compound (VOC) emissions, and nitrogen oxide (NO_X) emissions from the emergency diesel engine gen-sets (Engine Groups 1, 2, 2a and HGEN) shall be controlled by the use of good operating practices and performing appropriate maintenance in accordance with the manufacturer recommendations. In addition, the permittee may only change those settings that are permitted by the manufacturer and does not increase air emissions.
   (9VAC5-80-1180 and 9VAC5-50-260)

3. **Engine Electrical Power Output** - The emergency diesel engine gen-set (Engine Group HGEN) shall be equipped with a Cummins PowerCommand 3.3 control system to limit the electrical power output of the diesel engine gen-set to no more than 1,125 ekW.
   (9VAC5-80-1180 and 9VAC5-50-260)

4. **Monitoring Devices** - Each emergency diesel engine gen-set (Engine Groups 1, 2, 2a, and HGEN) shall be equipped with a non-resettable hour metering device to monitor the operating hours. The non-resettable hour meter used to continuously measure the hours of operation for each engine gen-set shall be observed by the owner with a frequency of not less than once each day the emergency diesel engine gen-set is operated. The owner shall keep a log of these observations.

   Each monitoring device shall be installed, maintained, calibrated (as appropriate) and operated in accordance with approved procedures which shall include, as a minimum, the manufacturer's written requirements or recommendations.

   Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the emergency diesel engine gen-sets are operating.
   (9VAC5-80-1180 D)

5. **Monitoring Devices -** The emergency diesel engine gen-set (Engine Group HGEN) shall be equipped with a device to continuously monitor and record the electrical power output (ekW) of the emergency diesel engine gen-set. The electrical power output data shall be reduced to one-hour averages for the engine gen-set each time the emergency diesel engine gen-set is operated.

   The monitoring device shall be installed, maintained, calibrated (as appropriate) and operated in accordance with approved procedures, which shall include, as a minimum, the manufacturer's written requirements or recommendations.

   The monitoring device shall be provided with adequate access for inspection and shall be in operation when the emergency diesel engine gen-set is operating.
   (9VAC5-80-1180 D)

OPERATING/EMISSION LIMITATIONS

6. **Operation of the Engine Gen-Sets -** The permittee shall operate and maintain each emergency diesel engine gen-set (Engine Groups 1, 2, 2a, and 3) and control device according to the manufacturer's written instructions or procedures developed by the permittee that are approved by the engine manufacturer. In addition, the permittee may only change those settings that are permitted by the manufacturer and do not increase air emissions.
   (9VAC5-80-1180)

7. **Operating Limitations (Ozone Season) -** No emergency diesel engine gen-set (Engine Groups 1, 2, 2a, and 3) shall be operated for scheduled maintenance and readiness testing (Scheduled MCRT), testing, or operation training (that involves fuel combustion) between the hours of 7 AM to 5 PM any day during the ozone season of May 1 through September 30. The permittee may petition the Air Compliance Manager of the DEQ NRO for exceptions to this requirement, with approvals made on a case by case basis.
   (9VAC5-80-1180)

8. **Operating Limitations (Ozone Season) - Integration Operational Period -** During the integration operational period of each emergency diesel engine gen-set (Engine Groups 1, 2, 2a, and 3), any operation of the unit (that involves fuel combustion) between the hours of 7 AM to 5 PM any day during the ozone season of May 1 through September 30 shall only occur if the forecast Air Quality Index (AQI) for ozone as published on the AirNow website (http://airnow.gov) for Northern Virginia for that day is ≤100. In the event that AirNow-EnviroFlash (www.enviroflash.info) issues an Air Alert for Metropolitan Washington, D.C. for a day which the forecasted AQI for ozone was ≤100, operation of each unit (which involves fuel combustion) shall be minimized to the maximum extent practical.
   (9VAC5-80-1180)

9. **Emergency Power Generation -** The emergency diesel engine gen-sets (Engine Groups 1, 2, 2a, and 3) shall only be operated in the following modes:

   a. In situations that arise from sudden and reasonably unforeseeable events where the primary energy or power source is disrupted or disconnected due to conditions beyond the control of an owner or operator of a facility including:

      i. A failure of the electrical grid;

      ii. On-site disaster or equipment failure; or

      iii. Public service emergencies such as flood, fire, natural disaster, or severe weather conditions.

   b. An Independent System Operator (ISO) declared emergency, where an ISO emergency is any of the following:

      i. An abnormal system condition requiring manual or automatic action to maintain system frequency, to prevent loss of firm load, equipment damage, or tripping of system elements that could adversely affect the reliability of an electric system or the safety of persons or property;

      ii. Capacity deficiency or capacity excess conditions;

      iii. A fuel shortage requiring departure from normal operating procedures in order to minimize the use of such scarce fuel;

      iv. Abnormal natural events or man-made threats that would require conservative operations to posture the system in a more reliable state; or

      v. An abnormal event external to the ISO service territory that may require ISO action.

   c. For scheduled maintenance checks and readiness testing (Scheduled MCRT).

   d. For unscheduled maintenance, testing, and operational training.

   e. For the integration operational period, which is the period of time beginning with the first time the affected unit is started on-site and ending when the affected unit is fully integrated with the source's electrical system.

   (9VAC5-80-1180)

10. **Operating Limits** - The emergency diesel engine gen-set (Engine Group HGEN) shall not operate at an electrical output of greater than 1,125 ekW. Compliance with this condition shall be demonstrated utilizing the electric output data from the required monitoring device in Condition 5.
(9VAC5-80-1180)

11. **Operating Hours** - The operating hours of the emergency diesel engine gen-sets (Engine Groups 1, 2, 2a, and HGEN) are limited to the following:

    a. No single unit (Engine Groups 1, 2, 2a, and 3) shall operate more than 500 hours per year for all purposes (as provided in Condition 9), calculated monthly as the sum of each consecutive 12-month period;

    b. The emergency diesel engine gen-sets (Engine Groups 1 and HGEN) combined shall not operate:

        i. More than a total of 985 hours per year (combined), calculated monthly as the sum of each consecutive 12-month period; and

        ii. More than 100 hours per year (combined), for maintenance checks and readiness testing (that involves fuel combustion), calculated monthly as the sum of each consecutive 12-month period. This hourly limit does not include initial (one-time) commissions, unplanned maintenance, manufacturer recall updates, and repairs.

    c. The emergency diesel engine gen-sets (Engine Groups 2 and 2a) shall not operate:

        i. More than a total of 3,150 hours per year (Engine Groups 2 and 2a) (combined), calculated monthly as the sum of each consecutive 12-month period;

        ii. More than 320 hours per year (Engine Group 2) for maintenance checks and readiness testing (that involves fuel combustion) combined, calculated monthly as the sum of each consecutive 12-month period. This hourly limit does not include initial (one-time) commissions, unplanned maintenance, manufacturer recall updates, and repairs; and

        iii. More than 18 hours per year (Engine Group 2a) for scheduled maintenance checks and readiness testing (Scheduled MCRT, as provided in Condition 9.c) each, calculated monthly as the sum of each consecutive 12-month period.

    Compliance for each consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.
    (9VAC5-80-1180)

12. **Fuel Specification** - The approved fuel for the emergency diesel engine gen-sets (Engine Groups 1, 2, 2a, and 3) is diesel fuel oil. The diesel fuel oil shall meet the ASTM D975 specification for S15 diesel fuel oil with a maximum sulfur content per shipment of 0.0015%. A change in the fuel may require a new or amended permit. (9VAC5-80-1180 and 9VAC5-50-260)

13. **Fuel Certification** - The permittee shall obtain a certification from the fuel supplier with each shipment of diesel fuel oil. Each fuel supplier certification shall include the following:

    a. The name of the fuel supplier;

    b. The date on which the diesel fuel oil was received;

    c. The quantity of diesel fuel oil delivered in the shipment;

    d. A statement that the diesel fuel oil:

        i. complies with the ASTM specifications for Grade No. 1-D S15 or Grade No. 2-D S15 (also known as ultra low sulfur diesel (ULSD)); or

        ii. has a sulfur content per shipment not to exceed 0.0015% by weight (15ppm) and either a minimum cetane number of forty or maximum aromatic content of thirty-five percent by volume.

    Alternatively, the permittee must obtain approval from the Regional Air Compliance Manager of the DEQ's Northern Regional Office (NRO), if other documentation will be used to certify the diesel fuel oil type.

    Fuel sampling and analysis, independent of that used for certification, as may be periodically required or conducted by DEQ may be used to determine compliance with the fuel specifications stipulated in Condition 12. Exceedance of these specifications may be considered credible evidence of the exceedance of emission limits. (9VAC5-80-1180)

EMISSION LIMITS

14. **Emission Limits (Hourly)** - Emissions from the operation of each emergency diesel engine gen-set shall not exceed the limits specified below:

Pollutant	Engine Groups 1 and 2	Engine Group 2a	Engine Group HGEN
Nitrogen Oxides (as NO_2)	44.31 lbs/hr	48.06 lbs/hr	20.52 lbs/hr
Carbon Monoxide (CO)	9.37 lbs/hr	7.05 lbs/hr	5.73 lbs/hr
Volatile Organic Compounds (VOC)	2.20 lbs/hr	1.10 lbs/hr	0.95 lbs/hr
Particulate Matter (PM_{10})	0.78 lbs/hr	0.56 lbs/hr	0.48 lbs/hr
Particulate Matter ($PM_{2.5}$)	0.78 lbs/hr	0.56 lbs/hr	0.48 lbs/hr

Compliance with these emission limits may be determined as stated in Conditions 1, 2, and 6.
(9VAC5-80-1180 and 9VAC5-50-260)

15. **Emission Limits (Annual) -** Total emissions from the combined operation of the emergency diesel engine gen-sets (Engine Groups 1, 2, 2a, and 3) of this permit for all purposes shall not exceed the limits specified below:

Pollutant	Engine Groups 1 and HGEN	Engine Groups 2 and 2a	Engine Groups 1, 2, 2a, and HGEN
Nitrogen Oxides (as NO_2)	21.82 tpy	75.69 tpy	97.51 tpy
Carbon Monoxide (CO)	4.61 tpy	14.76 tpy	19.37 tpy
Volatile Organic Compounds (VOC)	1.08 tpy	3.47 tpy	4.55 tpy
Particulate Matter (PM_{10})	0.38 tpy	1.23 tpy	1.61 tpy
Particulate Matter ($PM_{2.5}$)	0.38 tpy	1.23 tpy	1.61 tpy

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Conditions 1, 2, 6, and 11.
(9VAC5-80-1180)

16. **Visible Emission Limit** - Visible emissions from each emergency diesel engine gen-set (Engine Groups 1, 2, 2a, and 3) exhausts shall not exceed 5% opacity except during one 6-minute period in any one hour in which visible emissions shall not exceed 10% opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A). This condition applies at all times except during startup, shutdown and malfunction.

    During startup and shutdown, visible emissions from each emergency diesel engine gen-set shall not exceed 10% opacity except during one 6-minute period in any one hour in which visible emissions shall not exceed 20% opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A).
    (9VAC5-80-1180 and 9VAC5-50-260)

INITIAL COMPLIANCE DETERMINATION

17. **Stack Tests** - Initial performance tests shall be conducted on two (2) MTU Model 16V4000G84S emergency diesel engine gen-sets (Engine Group 2) for nitrogen oxides (as NO_2) using EPA Reference Method 7 or 7E and carbon monoxide (CO) using EPA Reference Method 10 or 10A to determine compliance with the respective emission limits contained in Condition 14.

    a. Emissions testing for each selected emergency engine-generator set shall consist of three one-hour test runs under load. The average of the three runs shall be reported as the short-term emission rate for that emergency engine-generator set;

    b. Testing shall be performed on the exhaust stack of the emergency engine-generator sets to demonstrate compliance with the NO_X and CO emission limits specified in Condition 14. Testing shall be conducted on the two MTU Model 16V4000G84S emergency engine gen-sets operating at ≥90 percent of their rated capacity unless multiple load band testing is approved by DEQ;

    c. Recorded emergency engine generator set operational information shall include, but not be limited to:

        i. Generator load/kilowatt output; and
        ii. Fuel consumption and fuel sulfur content of the fuel oil.

    d. Perform testing to demonstrate compliance within 120 days after the integration operational period has commenced. The integration operational period is defined as: the period of time beginning with the first time the affected unit is started on-site and ending when the affected unit is fully integrated with the sources electrical system. In no case shall this period exceed 30 days. If this deadline falls within the ozone season (May 1 through September 30), the facility shall perform testing to demonstrate compliance within 30 days after the end of the ozone season. Tests shall be conducted and reported and data reduced as set forth in 9VAC5-50-30;

e. The details of the tests are to be arranged with the DEQ NRO Regional Air Compliance Manager. The permittee shall submit the test protocol to the DEQ NRO Regional Air Compliance Manager at least thirty days prior to testing to ensure adequate time for DEQ approval. If the test protocol is received by the DEQ with less than thirty days for review and acceptance, DEQ approval may not be issued in a timely manner to allow for testing to take place according to the permittee's schedule;

f. Should conditions occur which would require rescheduling the testing, the permittee shall notify the DEQ NRO Regional Air Compliance Manager in writing, within seven days of the scheduled test date or as soon as the rescheduling is deemed necessary; and

g. Two copies, one paper copy and one on removable electronic media, of the test results shall be submitted to the DEQ NRO Regional Air Compliance Manager within 60 days after test completion and shall conform to the test report format enclosed with this permit.

(9VAC5-50-30, 9VAC5-80-1200, and 9VAC5-50-410)

18. **Stack Test** - Initial performance tests shall be conducted on two (2) CAT 3516C emergency diesel engine gen-sets (Engine Group 2a) for NO_X (as NO_2) and CO using appropriate EPA reference methods as approved by the Regional Air Compliance Manager of the DEQ's NRO to determine compliance with the emission limits contained in Condition 14.

a. Emissions testing of each pollutant for each selected emergency diesel engine gen-set shall consist of three (3) one-hour test runs under load. The average of the three (3) runs shall be reported as the short-term emission rate for that emergency diesel engine gen-set;

b. Testing shall be performed on the exhaust stack of the emergency diesel engine gen-set to demonstrate compliance with the NO_X and CO emission limits specified in Condition 14. Testing shall be conducted with the emergency diesel engine gen-set operating at $\geq$ 90 percent of its rated capacity, unless multiple load band testing is approved by DEQ;

c. Recorded emergency diesel engine gen-set operational information shall include, but not be limited to:

i. Generator load/kilowatt output.

ii. Fuel consumption and fuel sulfur content of the diesel fuel oil.

d. Perform testing to demonstrate compliance within 120 days after the integration operational period has commenced. The integration operational period is defined as:

the period of time beginning with the first time the affected unit is started on-site and ending when the affected unit is fully integrated with the source electrical system. In no case shall the integration operational period exceed 30 days. If this deadline falls within the ozone season (May 1 through September 30), the facility shall perform testing to demonstrate compliance within 30 days after the end of the ozone season. Tests shall be conducted and reported and data reduced as set forth in 9VAC5-50-30;

e. The details of the tests are to be arranged with the Regional Air Compliance Manager of DEQ's NRO. The permittee shall submit the test protocol to the Regional Air Compliance Manager of DEQ's NRO, at least 30 days prior to testing to ensure adequate time for DEQ approval. If the test protocol is received by the DEQ with less than 30 days for review and acceptance, DEQ approval may not be issued in a timely manner to allow for testing to take place according to the permittee's schedule;

f. Should conditions occur which would require rescheduling the testing, the permittee shall notify the Regional Air Compliance Manager of DEQ's NRO, in writing, within seven (7) days of the scheduled test date or as soon as the rescheduling is deemed necessary; and

g. Two (2) copies (one (1) paper copy and one (1) electronic copy) of the test results shall be submitted to the Regional Air Compliance Manager, DEQ's NRO within 60 days after test completion and shall conform to the test report format enclosed with this permit.

(9VAC5-50-30 and 9VAC5-80-1200)

19. **Visible Emissions Evaluation** - Concurrent with the initial compliance determination required in Conditions 17 and 18, Visible Emission Evaluations (VEE) in accordance with 40 CFR Part 60, Appendix A, Method 9, shall also be conducted by the permittee on the selected emergency diesel engine-generator sets selected for initial performance testing. The details of the tests shall be arranged with the Regional Air Compliance Manager of the DEQ's NRO. The permittee shall submit a VEE protocol in conjunction with the initial stack test protocol required by Conditions 17 and 18 at least 30 days prior to testing.

a. Should conditions prevent concurrent opacity observations, the Regional Air Compliance Manager of the DEQ's NRO shall be notified in writing, within seven days, and visible emissions testing shall be rescheduled within 30 days. Rescheduled testing shall be conducted under the same conditions (as possible) as the initial performance tests.

b. Two copies of the test result (one hard copy and one on electronic media) shall be submitted to the Regional Air Compliance Manager of the DEQ's NRO within 60 days after test completion and shall conform to the test report format enclosed with this permit (Attachment A).

(9VAC5-50-30 and 9VAC5-80-1200)

CONTINUING COMPLIANCE DETERMINATION

20. **Emissions Testing** - The emergency diesel engine gen-sets (Engine Groups 1, 2, 2a, and HGEN) shall be constructed so as to allow for emissions testing upon reasonable notice at any time, using appropriate methods. This includes constructing the facility/equipment such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and providing a stack or duct that is free from cyclonic flow. Sampling ports shall be provided when requested at the appropriate locations and safe sampling platforms and access shall be provided.
(9VAC5-50-30 F and 9VAC5-80-1180)

RECORDS

21. **On Site Records** - The permittee shall maintain records of emission data and operating parameters as necessary to demonstrate compliance with this permit. The content and format of such records shall be arranged with the Regional Air Compliance Manager of the DEQ's NRO. These records shall include, but are not limited to:

    a. Documentation from the manufacturer that each emergency diesel engine gen-set (Engine Groups 1, 2, 2a, and HGEN) is certified to meet the EPA Tier 2 emission standards.

    b. A log of the operating hour readings from the hour meter observations.

    c. A monthly log of monitoring device observations in ekW, as required by Condition 5.

    d. Records for emergency diesel engine gen-set operations, as necessary, to demonstrate compliance with the operating limitations of Condition 7; which includes but is not limited to: times, dates, and reasons for operation of each emergency diesel engine gen-set that was operating between May 1 and September 30.

    e. To verify compliance with Condition 8, maintain records of:

        i. The forecasted AQI, as determined by the AirNow website for Northern Virginia, for ozone for the day(s) that an emergency diesel engine gen-set operated during the integration operational period;

ii. The measured AQI, as determined by the AirNow website for Northern Virginia, for ozone for the day(s) that the emergency diesel engine gen-set operated during the integrational operational period;

iii. Documentation recording any Air Alerts issued for the operating day, as determined by AirNow-EnviroFlash; and

iv. Details of commissioning activities, to include, but not limited to, clock hours and duration.

f. Monthly and annual hours of operation of each emergency diesel engine gen-set (Engine Groups 1, 2, 2a, and HGEN), calculated monthly as the sum of each consecutive 12-month period.

g. Monthly and annual hours of operation of the emergency diesel engine gen-sets (Engine Groups 1 and HGEN) combined, calculated monthly as the sum of each consecutive 12-month period.

h. Monthly and annual hours of operation of the emergency diesel engine gen-sets (Engine Groups 2 and 2a) combined, calculated monthly as the sum of each consecutive 12-month period.

i. Monthly and annual hours of operation of each emergency diesel engine gen-set (Engine Groups 1, 2, and HGEN) for purposes of maintenance checks/readiness testing, calculated monthly as the sum of each consecutive 12-month period.

j. Monthly and annual hours of operation of each emergency diesel engine gen-set (Engine Group 2a), for purposes of scheduled maintenance checks and readiness testing (Scheduled MCRT), calculated monthly as the sum of each consecutive 12-month period.

k. Monthly and annual emissions calculations for NO_X (as NO_2), CO, VOC, PM_{10}, and $PM_{2.5}$ from the emergency diesel engine gen-sets (Engine Groups 1 and HGEN), with annual emissions calculated monthly, as the sum of each consecutive 12-month period, to verify compliance with the annual emission limits in Condition 15.

l. Monthly and annual emissions calculations for NO_X (as NO_2), CO, VOC, PM_{10}, and $PM_{2.5}$ from the emergency diesel engine gen-sets (Engine Groups 2 and 2a), with annual emissions calculated monthly, as the sum of each consecutive 12-month period, to verify compliance with the annual emission limits in Condition 15.

m. Monthly and annual emissions calculations for NO_X (as NO_2), CO, VOC, PM_{10}, and $PM_{2.5}$ from the emergency diesel engine gen-sets (Engine Groups 1, 2, 2a, and HGEN), with annual emissions calculated monthly, as the sum of each consecutive

12-month period, to verify compliance with the annual emission limits in Condition 15.

n. All fuel supplier certifications.

o. Engine information including make, model, serial number, model year, maximum engine power (bhp), and engine displacement for each emergency diesel engine gen-set.

p. The manufacturer's written operating instructions or procedures developed by the owner/operator that are approved by the engine manufacturer for each emergency diesel engine gen-set.

q. Records of the reasons for operation for each emergency diesel engine gen-set, including, but not limited to, the date, cause of operation, cause of the emergency, the ISO-declared emergency notification, and the hours of operation.

r. Results of all stack tests, visible emission evaluations, and electrical power output control device validation.

s. Records of changes in settings that are permitted by the manufacturer of the emergency diesel engine gen-sets.

t. Records of scheduled maintenance checks and readiness testing (Scheduled MCRT).

u. Records of unscheduled maintenance and operator training.

v. Records as required by Condition 27.

Compliance for the consecutive 12-month period in subsections above (as applicable) shall be demonstrated monthly by adding the total for the most recently completed month to the individual monthly totals for the preceding 11 months.

These records shall be available for inspection by the DEQ and shall be current for the most recent five years, unless otherwise noted.
(9VAC5-80-1180 and 9VAC5-50-50)

NOTIFICATIONS

22. **Initial Notifications** - The permittee shall furnish written notification of the items below to the Air Compliance Manager of the DEQ's NRO at the following address:

Regional Air Compliance Manager
Department of Environmental Quality
13091 Crown Court

Woodbridge, VA 22193

The permittee shall submit one notification for each building or construction phase containing information on each emergency engine gen-set as described below:

a. The actual date on which installation of the emergency diesel engine gen-sets (Engine Groups 2 and 2a) in the building, or phase, commenced within 30 days after such date. The notification must contain the following:

   i. Name and address of the permittee;
   ii. The address of the building;
   iii. Unit reference number of the initial unit installed and
   iv. The date construction commenced.

b. The date that the integration operational period started for each emergency diesel engine gen-set (Engine Groups 2 and 2a) within 15 days after the last generator at each building, or construction phase, completes its integration operational period. If a period of construction is paused or halted for 45 days this notification shall be provided to the DEQ within 15 days after completion of the integration operational period for the most recently installed emergency diesel engine gen-set. The notification must contain the following:

   i. Engine information including make, model, engine family, serial number, model year, maximum engine power, engine displacement, fuel used;
   ii. Installation date;
   iii. Unit reference number and
   iv. Integration operational period start and end dates.

For the purpose of this notification, the integration operational period is defined as: the period of time beginning with the first time the affected unit is started on-site and ending when the affected unit is fully integrated with the source's electrical system. In no case shall this period exceed 30 days.
(9VAC5-50-50 and 9VAC5-80-1180)

23. **BACT Applicability Notification** - The source will be subject to re-evaluation of Best Available Control Technology (BACT), which may result in the installation of air pollution control equipment, if any enforceable limitation on the emergency diesel engine gen-set's (Engine Group HGEN) capacity to emit a pollutant is relaxed. Specifically, relaxation of any condition to allow higher hourly emission limits on any pollutant will subject the emergency diesel engine gen-sets to BACT review as though construction had not commenced.
(9VAC5-80-1180)

GENERAL CONDITIONS

24. **Permit Invalidation** - This permit to construct the emergency diesel engine gen-sets (Engine Groups 1, 2, 2a, and HGEN) shall become invalid, unless an extension is granted by the DEQ, if:

    a. A program of continuous construction is not commenced within 18 months from the 'Original Permit Date' as listed for the diesel engine gen-sets in the Introduction section of this permit; or

    b. A program of construction is discontinued for a period of 18 months or more, or is not completed within a reasonable time, except for a DEQ approved period between phases of the phased construction of a new stationary source or project.

    (9VAC5-80-1210)

25. **Permit Suspension/Revocation** - This permit may be suspended or revoked if the permittee:

    a. Knowingly makes material misstatements in the permit application or any amendments to it;

    b. Fails to comply with the conditions of this permit;

    c. Fails to comply with any emission standards applicable to a permitted emissions unit;

    d. emissions from the stationary source which result in violations of, or interfere with the attainment and maintenance of, any ambient air quality standard; or

    e. Fails to operate in conformance with any applicable control strategy, including any emission standards or emissions limitations, in the State Implementation Plan in effect at the time an application for this permit is submitted.

    (9VAC5-80-1210 G)

26. **Right of Entry** - The permittee shall allow authorized local, state, and federal representatives, upon the presentation of credentials:

    a. To enter upon the permittee's premises on which the facility is located or in which any records are required to be kept under the terms and conditions of this permit;

    b. To have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit or the State Air Pollution Control Board Regulations;

c. To inspect at reasonable times any facility, equipment, or process subject to the terms and conditions of this permit or the State Air Pollution Control Board Regulations; and

d. To sample or test at reasonable times.

For purposes of this condition, the time for inspection shall be deemed reasonable during regular business hours or whenever the facility is in operation. Nothing contained herein shall make an inspection time unreasonable during an emergency.
(9VAC5-170-130 and 9VAC5-80-1180)

27. **Maintenance/Operating Procedures** - At all times, including periods of start-up, shutdown, and malfunction, the permittee shall, to the extent practicable, maintain and operate the affected source, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions.

The permittee shall take the following measures in order to minimize the duration and frequency of excess emissions:

a. Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance.

b. Maintain an inventory of spare parts.

c. Have available written operating procedures for equipment. These procedures shall be based on the manufacturer's recommendations, at a minimum.

d. Train operators in the proper operation of all such equipment and familiarize the operators with the written operating procedures, prior to their first operation of such equipment. The permittee shall maintain records of the training provided including the names of trainees, the date of training and the nature of the training.

Records of maintenance and training shall be maintained on site for a period of five years and shall be made available to DEQ personnel upon request.
(9VAC5-50-20 E and 9VAC5-80-1180 D)

28. **Record of Malfunctions** - The permittee shall maintain records of the occurrence and duration of any bypass, malfunction, shutdown or failure of the facility or its associated air pollution control equipment that results in excess emissions for more than one hour. Records shall include the date, time, duration, description (emission unit, pollutant affected, cause), corrective action, preventive measures taken and name of person generating the record.
(9VAC5-20-180 J and 9VAC5-80-1180 D)

29. **Notification for Facility or Control Equipment Malfunction** - The permittee shall furnish notification to the Regional Air Compliance Manager of the DEQ's NRO of malfunctions of the affected facility or related air pollution control equipment that may cause excess emissions for more than one hour. Such notification shall be made no later than four daytime business hours after the malfunction is discovered. The permittee shall provide a written statement giving all pertinent facts, including the estimated duration of the breakdown, within 14 days of discovery of the malfunction. When the condition causing the failure or malfunction has been corrected and the equipment is again in operation, the permittee shall notify the Regional Air Compliance Manager of the DEQ's NRO.
(9VAC5-20-180 C and 9VAC5-80-1180)

30. **Violation of Ambient Air Quality Standard** - The permittee shall, upon request of the DEQ, reduce the level of operation or shut down a facility, as necessary to avoid violating any primary ambient air quality standard and shall not return to normal operation until such time as the ambient air quality standard will not be violated.
(9VAC5-20-180 I and 9VAC5-80-1180)

31. **Change of Ownership** - In the case of a transfer of ownership of a stationary source, the new owner shall abide by any current minor NSR permit issued to the previous owner. The new owner shall notify the DEQ's NRO of the change of ownership within 30 days of the transfer.
(9VAC5-80-1240)

32. **Permit Copy** - The permittee shall keep a copy of this permit on the premises of the facility to which it applies.
(9VAC5-80-1180)

SOURCE TESTING REPORT FORMAT

Report Cover

1. Plant name and location
2. Units tested at source (indicate Ref. No. used by source in permit or registration)
3. Test Dates.
4. Tester; name, address and report date

Certification

1. Signed by team leader/certified observer (include certification date)
2. Signed by responsible company official
3. *Signed by reviewer

Copy of approved test protocol

Summary

1. Reason for testing
2. Test dates
3. Identification of unit tested & the maximum rated capacity
4. *For each emission unit, a table showing:
    a. Operating rate
    b. Test Methods
    c. Pollutants tested
    d. Test results for each run and the run average
    e. Pollutant standard or limit
5. Summarized process and control equipment data for each run and the average, as required by the test protocol
6. A statement that test was conducted in accordance with the test protocol or identification & discussion of deviations, including the likely impact on results
7. Any other important information

Source Operation

1. Description of process and control devices
2. Process and control equipment flow diagram
3. Sampling port location and dimensioned cross section Attached protocol includes: sketch of stack (elevation view) showing sampling port locations, upstream and downstream flow disturbances and their distances from ports; and a sketch of stack (plan view) showing sampling ports, ducts entering the stack and stack diameter or dimensions

Test Results

1. Detailed test results for each run
2. *Sample calculations
3. *Description of collected samples, to include audits when applicable

Appendix

1. *Raw production data
2. *Raw field data
3. *Laboratory reports
4. *Chain of custody records for lab samples
5. *Calibration procedures and results
6. Project participants and titles
7. Observers' names (industry and agency)
8. Related correspondence
9. Standard procedures

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* Not applicable to visible emission evaluations